

1 1. A method for removing interfering agents from a polymeric membrane layer  
2 comprising:  
3 providing an electrochemical sensor comprising an electrode and a composite  
4 membrane said composite membrane comprising at least one polymeric membrane;  
5 providing an electrical source in electrical contact with said electrode; and  
6 applying an electrical potential to said electrode sufficient to cause at least a portion  
7 of the interfering agents in said composite membrane to be removed.

1 2. The method of claim 1, wherein said electrical potential comprises a range of about  
2 0.1 to 0.8 V versus an on-board reference electrode.

1 3. The method of claim 1, wherein said range of electrical potential is applied for about  
2 10 to 200 seconds.

1 4. The method of claim 1, wherein said electrical potential comprises about 0.4 V versus  
2 an on-board reference electrode and is applied for about 50 seconds.

1 5. A method for restoring the functional properties of an electrochemical sensor, said  
2 method comprising:  
3 providing an electrochemical system, said electrochemical sensor system comprising:

4 an electrochemical sensor card comprising at least one electrochemical  
5 sensor, said electrochemical sensor comprising an electrode and a composite  
6 membrane said composite membrane comprising at least one polymeric  
7 membrane;

8 an electrochemical sensor apparatus in electrical contact with the  
9 electrochemical sensor card, the electrochemical sensor apparatus configured  
10 to measure electrical signals from the electrochemical sensor card and to  
11 provide an electrical potential to the electrochemical sensor; and

12 a reservoir containing an electropolymerizable monomer in a solution  
13 in fluid communication with the electrochemical sensor card;  
14 contacting the electrochemical sensor with the solution; and

15 applying an electrical potential of sufficient strength and sufficient duration to cause  
16 at least a portion of the electropolymerizable monomer in the solution to polymerize onto the  
17 polymeric membrane.

1 6. The method of claim 5, further comprising: adding the electropolymerizable monomer  
2 to a calibrating solution to form an electropolymerizable monomer solution.

1 7. The method of claim 5, wherein said electrical potential comprises a range of about  
2 0.1 to 0.8 V versus an on-board reference electrode.

1 8. The method of claim 5, wherein said range of electrical potential is applied for about  
2 30 seconds to one hour.

1 9. The method of claim 5, wherein said electrical potential comprises about 0.5V versus  
2 an on-board reference electrode and is applied for about 3 minutes.

1 10. The method of claim 5, further comprising: applying an additional electrical potential  
2 to the electrode of sufficient strength and sufficient duration to remove at least a portion of  
3 interfering agents in said polymeric membrane.

1 11. The method according to claim 10, wherein the electrical potential is applied in the  
2 range of about 0.1 to 0.8V and for a duration about 10-200 seconds.

1 12. A method for restoring the functional properties of an electrochemical sensor  
2 cartridge comprising:

3 connecting an electrochemical sensor cartridge comprising an electrochemical sensor  
4 to an electrochemical sensor apparatus, the electrochemical sensor comprising an electrode  
5 and a composite membrane comprising at least one polymeric membrane;

6 contacting the electrochemical sensor with an electropolymerizable monomer  
7 solution; and

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8 applying an electrical potential of sufficient strength and sufficient duration to cause  
9 at least a portion of the electropolymerizable monomer solution to polymerize onto the  
10 polymeric membrane.

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1 14. The method of claim 13, further comprising: adding an electropolymerizable  
2 monomer to a calibrating solution to form said electropolymerizable monomer solution.

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1 15. The method of claim 13, wherein said electrical potential comprises a range of about  
2 0.1 to 0.8 V versus an on-board reference electrode.

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1 16. The method of claim 13, wherein said range of electrical potential is applied for a  
2 range of time from about 30 seconds to 1 hour.

16  
1 17. The method of claim 13, wherein said electrical potential comprises about 0.5V  
2 versus an on-board reference electrode and is applied for about 3 minutes.

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1 18. The method of claim 13, further comprising: applying an additional electrical  
2 potential of sufficient strength and sufficient duration to the electrode to cause removal of at  
3 least a portion of the interfering agents in said polymeric membrane.

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1 19. The method according to claim 18, wherein the electrical potential is applied in the  
2 range of about 0.1 to 0.8V for a duration about 10-200 seconds.

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